

REMARKS/ARGUMENTS

Favorable reconsideration of this application is respectfully requested.

Initially, applicants note the returned form PTO-1449 from the Information Disclosure Statement (IDS) filed September 16, 2005 did not fully acknowledge each of the references cited therein. Provided with that IDS was an International Search Report that clearly provided statements of relevancy for each reference cited in that IDS. Thereby, consideration of each reference in that IDS is proper. The Office Action indicates copies of the 11 foreign references have not been received. In reply applicants note those references were from the International Search Report, as the present application is a National Stage application from the International PCT document, and thereby those references have or should have been provided from the International Search Bureau. Thereby, applicants have fulfilled all requirements with respect to that IDS and consideration of that IDS is proper.

Applicants respectfully request that a new form PTO-1449 be provided to applicants properly acknowledging each reference on that IDS.

Claims 7-9 are pending in this application. Claims 1-6 are canceled by the present response without prejudice and new claims 7-9 are added for examination. No new matter is believed to be added.

Claims 1-6 were rejected under 35 U.S.C. § 112, second paragraph. Claims 1 and 2 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. patent 3,835,531 to Luttmer.

Addressing first the rejection of original claims 1-6 under 35 U.S.C. § 112, second paragraph, that rejection is traversed by the present response. Claims 1-6 are canceled by the present response and new claims 7-9 are added for examination. New claims 7-9 have been written to clarify the language noted as unclear in claims 1-6. Claims 7-9 are believed to be clear and definite.

Addressing now the rejection of claims 1 and 2 under 35 U.S.C. § 103(a) as unpatentable over Luttmer, that rejection is traversed by the present response. Specifically new claims 7-9 are believed to clearly distinguish over Luttmer.

According to features recited in new claims 7-9, and with reference to Figures 2-5 in the present specification as a non-limiting example, particles having a spacer function are sandwiched between a columnar conductor (e.g., post 16) and a cover layer (e.g., copper foil 24).¹ The cover layer (e.g., copper foil 24) is then etched away from an insulating sheet and the top surface of the columnar conductor (e.g., post 16) is not damaged.²

First, the cited art to Luttmer does not disclose or suggest particles having a spacer function are mixed into an insulating sheet, and are sandwiched between a columnar conductor and a cover layer.

Further, with the structure in the claimed invention as particles having a spacer function are mixed into an insulating sheet and sandwiched between a columnar conductor (e.g., post) and a cover layer (e.g., copper foil) an insulating layer having substantially a same thickness as a diameter of the particles are formed between the columnar conductor and the cover layer.

According to other features in the claims as written, the cover layer (e.g., copper foil) is removed from the surface of the insulating sheet and an uneven pattern is exposed. That feature is reflected in the "third step" recited in new independent claim 7, and see also Figure 5A in the present specification. With such a claimed structure the uneven surface can be subjected to an electroless plating and a pattern formed with an electrode of the plating, which may particularly result if a thickness of the copper film is 1 to 15 μm (see for example new dependent claim 8) and the thickness of the electroless plating is 2 μm . The above features also distinguish over the applied art to Luttmer.

¹ See the last paragraph in new independent claim 7.

² See also the present specification at page 21, lines 10-20.

The claims also recite removing a cover layer, see again the “third step” of new independent claim 7. The applicants of the present invention recognized that the present invention can provide a benefit when patterning is performed by photolithography to form a thin electrode since an aspect ratio is limited. The present invention can operate in such an environment as the cover layer (e.g., copper foil) is removed from the insulating sheet. Such a cover layer (e.g., copper foil) is not used as a conductive member, but to make a thickness of the insulating layer constant. For such reasons the cover layer could also be an insulative film substrate.

Moreover, the cover layer (e.g., a copper foil) is removed through a chemical reaction according to features in the claimed invention. That allows the cover layer to be removed by an electroless plating or a photolithography could be performed so that the columnar conductor could be prevented from being damaged by chemicals since the columnar conductor is not exposed from an uneven surface between the cover layer and the insulating layer. The insulation layer on the columnar conductor could also be removed by a blast or laser to have the columnar conductor and the electroless plating conducted.

Features reflected in the new claims as discussed above clearly distinguish over Luttmer.

Luttmer was merely cited to disclose forming circuit interconnections between adjacent circuits 17 of a multilayered circuit structures and including columnar conductors 13 and 14. Luttmer does not disclose any of the above-noted features discussed above.

In such ways the claims as written distinguish over Luttmer.

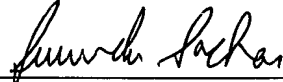
Moreover, none of the other cited art are believed to disclose the above-noted features reflected in the claims as written.

In view of the present response applicants respectfully submit new independent claim 7, and claims 8 and 9 dependent therefrom, distinguish over the applied art.

As no other issues are pending in this application, it is respectfully submitted that the present application is now in condition for allowance, and it is hereby respectfully requested that this case be passed to issue.

Respectfully submitted,

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